

That Which is Claimed is:

1. An impact modified polyethylene terephthalate resin composition comprising:
 - a. 99 to 70% by weight of a polyethylene terephthalate resin component, and
 - b. 1 to 30% by weight of an impact modifier component comprising graph copolymer particles, wherein said graph copolymer particles:
 - 1) have a rubber-containing core portion at least partially grafted to a shell portion,
 - 2) have a minimum concentration of rubber in the core portion greater than 85 weight percent, and
 - 3) consist of:
 - a) a core portion obtained by enlarging the particle size of a rubber particle which has an average particle size of at most 0.1 μm , and which comprises a butadiene (co)polymer obtained by the polymerization of:
 - (1) 30 to 100% by weight of butadiene,
 - (2) 70 to 0% by weight of an aromatic vinyl copolymer or an aromatic (meth)acrylate,
 - (3) 10 to 0% by weight of a vinyl monomer copolymerizable therewith, and
 - (4) 5 to 0% by weight of a cross-linking agent; and
 - b) a shell portion obtained by a polymerization of:
 - (1) 30 to 100% by weight of an aromatic vinyl compound,
 - (2) 70 to 0% by weight of an alkyl (meth)acrylate, and
 - (3) 0 to 20% by weight of a vinyl monomer copolymerizable therewith.
2. An impact modified polyethylene terephthalate resin composition as recited in claim 1, wherein the core portion is obtained by agglomeration and enlarging of the particle size of the rubber comprising the butadiene (co)polymer by using a water-soluble electrolyte.

3. An impact modified polyethylene terephthalate resin composition as recited in claim 1, wherein the core portion is obtained by enlarging the particle size of the rubber comprising the butadiene (co)polymer by using an acid group-containing latex comprising a copolymer of a (meth)acrylate and an unsaturated acid.

4. An impact modified polyethylene terephthalate resin composition as recited in claim 1, wherein:

- a. the aromatic vinyl compound comprises a compound having one vinyl double bond and at least one benzene nucleus within a molecule,
- b. the aromatic (meth)acrylate comprises an ester of acrylic acid or methacrylic acid with an aromatic compound having a hydroxyl group,
- c. the vinyl monomer comprises a (meth)acrylate other than the aromatic (meth)acrylate, and
- d. the cross-linking agent comprises at least one of the following: divinylbenzene, ethylene glycol dimethacrylate, and polyethylene glycol dimethacrylate.

5. An impact modified polyethylene terephthalate resin composition as recited in claim 1, comprising from 3 to 20 % by weight of the impact modifier component, and 97 to 80 % by weight of the amorphous-polyethylene terephthalate resin component.

6. An impact modified polyethylene terephthalate resin composition as recited in claim 1, wherein the impact modifier component further comprises at least one of the following:

- a. a population of polymeric particles, wherein said polymeric particles comprise void-containing rubber portion, wherein the volumetric proportion of the voids defined therein ranges from 1 to 90 percent, and wherein the void-containing rubber portion comprises from 20 to 90 weight percent of the individual polymeric particles,
- b. at least 1 weight percent of a processing oil component;
- c. at least 2 weight percent of a processing aid component;

d. at least two different populations of polymeric particles, wherein each has a rubber-containing portion, and wherein the difference between the populations is in at least one of the following areas:

- 1) the void concentration in the rubber-containing portions of each population,
- 2) the chemical composition of each population,
- 3) the average particle size of each population, and
- 4) the shape of each population.

7. An impact modified polyethylene terephthalate resin composition comprising:

- a. 99 to 70% by weight of a polyethylene terephthalate resin component, and
- b. 1 to 30% by weight of an impact modifier component comprising:

- 1) graph copolymer particles, wherein said graph copolymer particles:

- a) have a rubber-containing core portion at least partially grafted to a shell portion,
- b) have a concentration of rubber in the core portion ranging from 20 to 85 weight percent, and
- c) consist of:

- (1) a core portion obtained by enlarging the particle size of a rubber particle which has an average particle size of at most 0.1 μm , and which comprises a butadiene (co)polymer obtained by the polymerization of:

- (a) 30 to 100% by weight of butadiene,
- (b) 70 to 0% by weight of an aromatic vinyl copolymer or an aromatic (meth)acrylate,
- (c) 10 to 0% by weight of a vinyl monomer copolymerizable therewith, and
- (d) 5 to 0% by weight of a cross-linking agent;

and

- (2) a shell portion obtained by a polymerization of:

- (a) 30 to 100% by weight of an aromatic vinyl compound,
- (b) 70 to 0% by weight of an alkyl (meth)acrylate, and

(c) 0 to 20% by weight of a vinyl monomer copolymerizable therewith; and

2) at least one of the following:

a) a population of polymeric particles, wherein said polymeric particles comprise void-containing rubber portion, wherein the volumetric proportion of the voids defined therein ranges from 1 to 90 percent, and wherein the void-containing rubber portion comprises from 20 to 90 weight percent of the individual polymeric particles,

b) at least 1 weight percent of a processing oil component;

c) at least 2 weight percent of a processing aid component;

d) at least two different populations of polymeric particles, wherein each has a rubber-containing portion, and wherein the difference between the populations is in at least one of the following areas:

(1) the void concentration in the rubber-containing portions of each population,

(2) the chemical composition of each population,

(3) the average particle size of each population, and

(4) the shape of each population.

8. An impact modified polyethylene terephthalate resin composition as recited in claim 7, wherein concentration of rubber in the core portion of the graft copolymer particles ranges from 30 to 80 weight percent.

9. An impact modified polyethylene terephthalate resin composition as recited in claim 7, wherein:

- a. the aromatic vinyl compound comprises a compound having one vinyl double bond and at least one benzene nucleus within a molecule,
- b. the aromatic (meth)acrylate comprises an ester of acrylic acid or methacrylic acid with an aromatic compound having a hydroxyl group,
- c. the vinyl monomer comprises a (meth)acrylate other than the aromatic (meth)acrylate, and
- d. the cross-linking agent comprises at least one of the following:
divinylbenzene, ethylene glycol dimethacrylate, and polyethylene glycol dimethacrylate.

10. An impact modified polyethylene terephthalate resin composition as recited in claim 7, comprising from 3 to 20 % by weight of the impact modifier component, and 97 to 80 % by weight of the amorphous-polyethylene terephthalate resin component.